

THE AMENDMENT

In the Claims

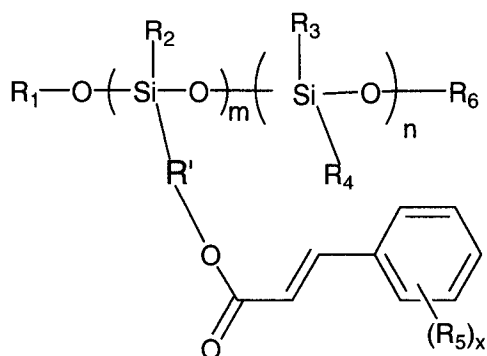
1-26. (cancelled)

27. (currently amended) A process for top-sealing a display cell of a liquid crystal display which process comprises predispersing a photoalignable top-sealing composition into a liquid crystal composition, filling the predispersion into the display cell, and simultaneously or sequentially hardening the photoalignable top-sealing composition after phase separation to form a photoalignable top-sealing layer and aligning the photoalignable top-sealing layer.

28. (original) The process of Claim 27 wherein said photoalignable top-sealing composition comprises a photoalignable polymer, oligomer or a precursor thereof having a photoalignable functional group on the main chain or a side chain.

29. (original) The process of Claim 28 wherein said photoalignable functional group is selected from the group consisting of cinnamate, coumarin, chalcony, benzolidenenaphthalidine, benzylideneacetophenone, diphenylacetylene, stilbazole, stilbene, diphenylacetylene, diazo and spiropyran.

30. (currently amended) The process of Claim 27 wherein said photoalignment top-sealing composition comprises a photoalignable polymer, oligomer or a precursor thereof represented by one of the following formulas:

Formula I

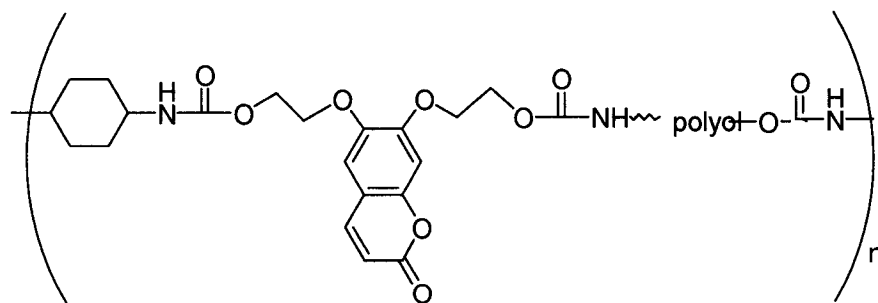
(I)

wherein x is an integer of 1-5;

m and n are integers and their sum is ≥ 20 ;

R₁, R₂, R₃, R₄ and R₅ are independently alkyl, aryl, alkylaryl or ~~their~~ heteroatom derivatives thereof, substituted or unsubstituted alkylsilyl derivatives; and

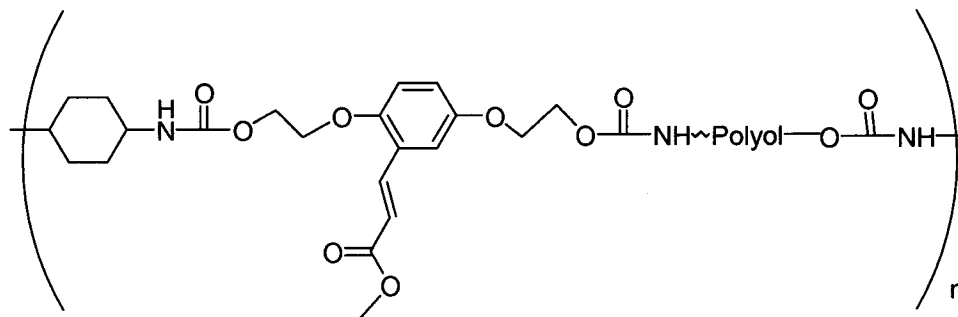
R' is a linking group such as alkylene, cycloalkylene or ~~phenylene-phenylene~~ phenylene-phenylene;

Formula II

(II)

wherein n is integer ≥ 1 ; and the polyol moiety is formed from polyethylene glycol, polypropylene glycol, poly tetramethylene glycol, polyester diol, polyalkylene diol or a fluorinated polyether diol;

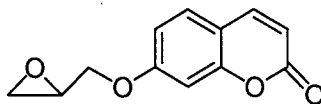
Formula III



(III)

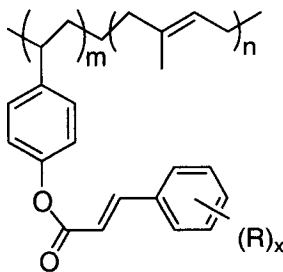
wherein n is an integer ≥ 1 ; and the polyol moiety is formed from polyethylene glycol, polypropylene glycol, poly tetramethylene glycol, polyester diol, polyalkylene diol or a fluorinated polyether diol;

Formula IV



(IV)

Formula V

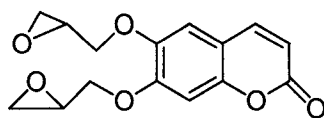


(V)

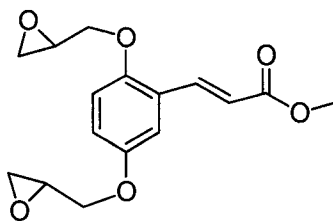
wherein x is an integer from 0 to 5;

m and n are integers and their sum is ≥ 30 ; and

R is alkyl, aryl, alkylaryl, alkoxy, aryloxy, dialkylamino, diarylamino or cyano, preferably having 1-12 carbon atoms;

Formula VI

(VI)

Formula VII

(VII)

31. (original) The process of Claim 27 wherein hardening of the photoalignable top-sealing layer is accomplished by heat, moisture, solvent evaporation or exposure to radiation.

32. (original) The process of Claim 31 wherein said radiation is a polarized (UV) light.

33. (original) The process of Claim 32 wherein the polarized light exposure is carried out under an electric field.

34. (currently amended) A process for top-sealing a display cell of a liquid crystal display which process comprises filling a liquid crystal composition into the display cell, overcoating a photoalignable top-sealing composition onto the liquid crystal layer and simultaneously or sequentially hardening the photoalignable top-sealing composition to form a photoalignable top-sealing layer and aligning the photoalignable top-sealing layer.

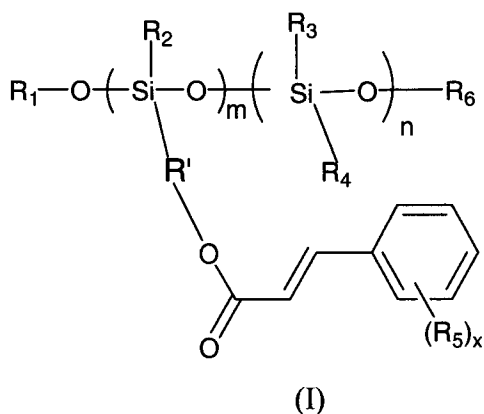
35. (currently amended) The process of Claim 34 wherein said photoalignable top-sealing composition comprises a photoalignable polymer, oligomer or a precursor

thereof having a photoalignable functional group on the main chain or a side chain.

36. (original) The process of Claim 35 wherein said photoalignable functional group is selected from the group consisting of cinnamate, coumarin, chalcony, benzolidenenaphthalidine, benzylideneacetophenone, diphenylacetylene, stilbazole, stilbene, diphenylacetylene, diazo and spiropyran.

37. (currently amended) The process of Claim 34 wherein said photoalignable top-sealing composition comprises a photoalignment polymer, oligomer or a precursor thereof represented by one of the following formulas:

Formula I

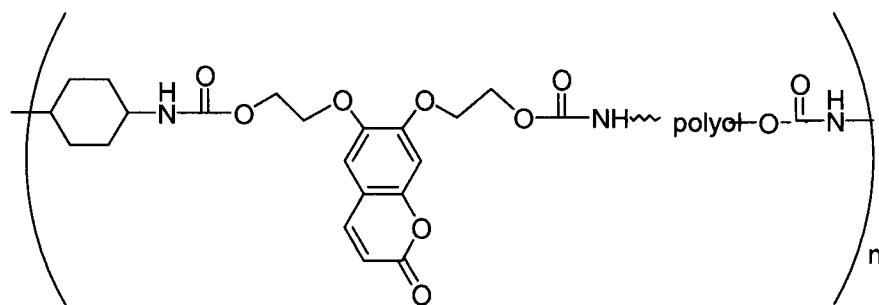


wherein x is an integer of 1-5;

m and n are integers and their sum is ≥ 20 ;

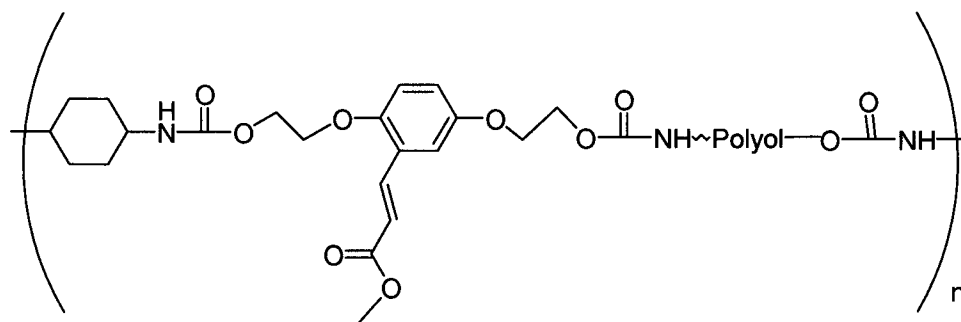
R₁, R₂, R₃, R₄ and R₅ are independently alkyl, aryl, alkylaryl or ~~their~~ heteroatom derivatives thereof, ~~preferably~~ having 1-12 carbon atoms, substituted or unsubstituted alkylsilyl derivatives; and

R' is a linking group such as alkylene, cycloalkylene or phenylene;

Formula II

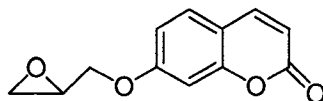
(II)

wherein n is integer ≥ 1 ; and the polyol moiety is formed from polyethylene glycol, polypropylene glycol, poly tetramethylene glycol, polyester diol, polyalkylene diol or a fluorinated polyether diol;

Formula III

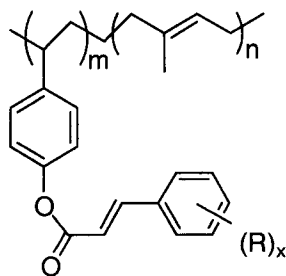
(III)

wherein n is an integer ≥ 1 ; and the polyol moiety is formed from polyethylene glycol, polypropylene glycol, poly tetramethylene glycol, polyester diol, polyalkylene diol or a fluorinated polyether diol;

Formula IV

(IV)

Formula V



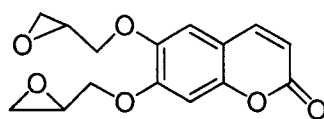
(V)

wherein x is an integer from 0 to 5;

m and n are integers and their sum is ≥ 30 ; and

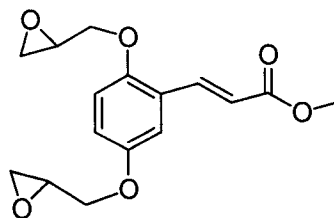
R is alkyl, aryl, alkylaryl, alkoxy, aryloxy, dialkylamino, diarylamino or cyano, preferably having 1-12 carbon atoms;

Formula VI



(VI)

Formula VII



(VII)

38. (original) The process of Claim 34 wherein hardening of the photoalignable top-sealing layer may be accomplished by heat, moisture, solvent evaporation or exposure to radiation.

39. (original) The process of Claim 38 wherein said radiation is a polarized (UV) light.

40. (original) The process of Claim 27 or 34 wherein said photoalignable top-sealing composition is immiscible with the liquid crystal composition.

41. (original) The process of Claim 27 or 34 wherein said photoalignable top-sealing composition has a specific gravity no greater than that of the liquid crystal composition.

42. (original) The process of Claim 27 or 34 wherein said photoalignable top-sealing composition comprising a solvent that is immiscible with the liquid crystal composition.

43. (original) The process of Claim 27 or 34 wherein said photoalignable top-sealing composition further comprises a non-photoalignable polymer or an additive.

44. (original) The process of Claim 27 wherein the predispersion is prepared by an in-line blender.

45. (currently amended) An assembly process for the manufacture of a liquid crystal display, which process comprises the following steps, not necessarily in the order listed:

- (a) optionally adding a first alignment layer over a substrate or electrode layer;
- (b) aligning the alignment layer, if present;
- (c) building edge walls to define the display periphery on the alignment layer or substrate;
- (d) building spacers on the alignment layer or the substrate to form display cells;
- (e) filling the display ~~cell~~ cells with a predispersion of a liquid crystal composition and a photoalignable top-sealing composition;
- (f) hardening the photoalignable top-sealing composition to form a photoalignable top-sealing layer;
- (g) aligning the photoalignable top-sealing layer ~~formed thereon~~ by a polarized light; and

(h) disposing a second substrate or electrode layer over the top-sealed display cell cells, optionally with an adhesive.

46. (original) The process of Claim 45 wherein said spacers and edge walls are built on the bottom substrate by printing, coating or photolithography.

47. (original) The process of Claim 45 wherein said spacers and edge walls are built on the bottom substrate by photolithography.

48. (original) The process of Claim 45 wherein steps (f) and (g) may be carried out simultaneously or sequentially.

49. (original) The process of Claim 45 wherein the alignment step (b) for the first alignment layer of (a) if present may be carried out by a polarized light after the step (c) or step (d).

50. (currently amended) An assembly process for the manufacture of a liquid crystal display, which process comprises the following steps, not necessarily in the order listed:

- (a) optionally adding a first alignment layer over a substrate or electrode layer;
- (b) aligning the alignment layer, if present;
- (c) building edge walls to define the display periphery;
- (d) building spacers on the alignment or the substrate layer to form display cells;
- (e) filling the display ~~cell~~ cells with a liquid crystal composition;
- (f) overcoating the filled display cells with a photoalignable top-sealing ~~layer~~ composition;
- (g) hardening the photoalignable top-sealing ~~layer composition~~ to form a photoalignable top-sealing layer;
- (h) aligning the photoalignable top-sealing layer by a polarized light; and
- (i) disposing a second substrate or electrode layer over the top-sealed display cells, optionally with an adhesive.

51. (original) The process of Claim 50 wherein said spacers and edge walls are built on the bottom substrate by printing, coating or photolithography.

52. (original) The process of Claim 50 wherein said spacers and edge walls are built on the bottom substrate by photolithography.

53. (original) The process of Claim 50 wherein steps (g) and (h) may be carried out simultaneously or sequentially.

54. (original) The process of Claim 50 wherein the alignment step (b) for the first alignment layer of (a) if present may be carried out by a polarized light after the step (c) or step (d).

55. (original) The process of Claim 45 or 50 wherein said second substrate or electrode layer is disposed on the top-sealed display cell by lamination, coating, printing, vapor deposition, sputtering or a combination thereof.

56. (original) The process of Claim 45 or 50 wherein said adhesive of the step (h) or (i) respectively is photoalignable or self-alignable.

57. (original) The process of Claim 45 or 50 which is carried out on a web or conveyor continuously or semi-continuously.

58-66. (cancelled)